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09/200,523	11/25/1998	SYED AON MUJTABA		4927

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EXAMINER

LOGSDON, JOSEPH B

ART UNIT

PAPER NUMBER

2662

DATE MAILED: 02/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/200,523

Applicant(s)

MUJTABA, SYED AON

Examiner

Joe Logsdon

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**Claim Rejections—35 U.S.C. 112, Second Paragraph:**

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5, 12, and 19 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. According to the wording of claims 4, 11, and 16, both the first subset and the second subset contain M OFDM carriers. But according to claims 5, 12, and 19, the number of carriers in the two subsets varies as a function of demand, which would not be the case if they are constrained to have the same number, M, of carriers. In claim 4, for example, based on the description provided in the specification, it appears that the intended wording would be provided if "a first subset of M" were replaced with - a first subset of the- - and "a second subset of the M" were replaced with - a second subset of the- -. It appears that similar wording should be provided for claims 11 and 18.

**Claim Rejections—35 U.S.C. 103(a):**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2662

4. Claims 1-4, 6-11, and 13-18, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fertner et al. in view of El-Arabawy et al.

With regard to claims 1, 2, 8, 9, 15, and 16, Fertner et al. teaches that digital information can be communicated using orthogonal frequency divided duplex (OFDD) (column 11, lines 36-41). This scheme can be used for full duplex DMT transmission (column 12, lines 30-35).

Fertner et al. fails to teach that the method can be applied to a fixed wireless cellular loop communication system using a base station and subscriber units. El-Arabawy et al. that OFDM can be used in mobile communications and in high bit rate radio local area networks (Abstract; Introduction); this suggests that the invention of Fertner et al. would be useful for a fixed wireless cellular loop communication system using a base station and subscriber units. It would have been obvious to one of ordinary skill in the art to modify the invention of Fertner et al. so that it is applied to a fixed wireless cellular loop communication system using a base station and subscriber units, as suggested by El Arabawy et al., because such an arrangement would enable offer fixed wireless cellular loop communication systems using a base stations and subscriber units to benefit from the advantages offered by OFDM for high data rate signaling over time dispersive channels (Introduction in El Arabawy et al.).

With regard to claims 3, 10, and 17, Fertner et al. fails to teach that the communication between the base station and one group of subscriber units is separated from the communication between the base station and another group of subscriber units using at least one of CDMA, TDMA, or FDMA. Examiner takes Official Notice that the use of CDMA, TDMA, and FDMA for multiple access communication in a wireless communication system has been well known in the art. It would have been obvious to one of ordinary skill in the art to modify the invention of

Art Unit: 2662

Fertner et al. so that the communication between the base station and one group of subscriber units is separated from the communication between the base station and another group of subscriber units using at least one of CDMA, TDMA, or FDMA because Examiner takes Official Notice that the use of CDMA, TDMA, and FDMA for multiple access communication in a wireless communication system has been well known in the art as a means for allowing several subscriber stations to communicate with the same base station without significant interference.

With regard to claims 4, 11, and 18, Fertner et al. teaches that there are advantages to assigning some of the subcarriers to the upstream direction and the others to the downstream direction (column 12, lines 36-47). In a preferred embodiment the bandwidth is split so that one group, which is used for one direction, consists of even subcarriers and the other group, which is used for the other direction, consists of odd subcarriers (column 12, lines 39-42). In this case, the same number,  $M$ , of subcarriers is assigned to each group.

With regard to claims 6, 7, 13, 14, 20, and 21, Fertner et al. teaches that in a preferred embodiment the bandwidth is split so that one group, which is used for one direction, consists of even subcarriers and the other group, which is used for the other direction, consists of odd subcarriers (column 12, lines 39-42). Efficiencies can be gained by applying the inverse discrete Fourier transform (IDFT) to only even or odd subcarriers and the discrete Fourier transform (DFT) to only odd or even subcarriers, respectively (column 12, lines 42-47).

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gilbert et al. is cited to show the state of the art.

### Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Logsdon whose telephone number is (703) 305-2419. The examiner can normally be reached on Monday through Friday from 1:00 pm to 9:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached at (703) 305-4744.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700.

7. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**Or faxed to:**

(703) 872-9314

For informal or draft communications, please label "PROPOSED" or "DRAFT".

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Joe Logsdon

Patent Examiner

Tuesday, February 05, 2002

  
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